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THE MARINE RECORD.

DEVOTED TO COMMERCE, ENGINEERING AND SCIENCE.

VOL. VIII. NO. 7. CLEVELAND, O., FEBRUARY 18, 1886. $2.00 Per Annum Single Copies 5 Cents

AROUND THE LAKES.

CLEVELAND.

It is safe to say that no coal charters have yet been made.

Captain James Davidson of Buffalo, and Mr. Kagan, of Chicago, are in the city.

The Globe Iron Works are building a steering engine 7 inch bore, 6 inch stroke, for the City of Rome.

Captain James Williams, of the Winnifred, left Monday morning on a pleasure trip to New Orleans and Florida.

John R. Smith last season chief engineer of the steamer Cormorant is to fill the same position on the steamer Egyptian.

Captain Bushnell H. Jones last season master of the steamer Raleigh is to sail a steamer in Captain T. Wilson's line.

Captain C. Z. Montague has been appointed master of the Grace Holland vice Captain Rattray appointed to the schooner Magnetic.

Duncan Grant, for several seasons past chief engineer of the steamer Republic, who has been sick some time, lately became insane.

Mr. Henry A. Howe has been appointed chief engineer of the steamer H. B. Tilton. He was chief of the tug Thomas Quayle last season.

Warren G. Tilton has been appointed chief engineer of the steamer Oscar Townsend Mr. Tilton has been assistant engineer on the steamer Continental.

Captain Thomas Wilson and family have gone by way of Kansas City to Los Angeles and San Francisco, where they expect to spend a month or six weeks.

Captain C. T. Morley will sail the steamer Samuel F. Hodge of Ward's Line until the completion of the new steamer building at Bay City for Ward's Line. He will then sail the new one.

The Globe Iron Works are building a locomotive boiler 8 feet diameter, 27 feet long for a link machine at the Cleveland City Forge, and a boiler 12 feet diameter and 12½ feet long, to carry 110 pounds of steam for Mr. Christie of Detroit.

Work on the new boats at Radcliff's yard and Quayle's Sons' yard is progressing favorably, and there is plenty of timber on the ground to continue. The work on the steel steamer at the Globe yard has been delayed for a time on account of getting iron, but it is thought that the delay has been overcome.

At the Globe drydock the repairs necessary to be made in dock to the steamer Havana have been completed and the Sparta has taken her place, the ice going out of the river at an opportune moment to make the transfer easy. The two boats will be in excellent shape when the repairs are finished.

The ice in Rocky, River, where the yachts Winnifred and Cora are laid up; went out on Saturday last, threatening to carry off both yachts. The water in the creek raised about ten feet and but for the active efforts of Captains Disbrow and Williams the yachts would have been carried out and sunk. Captains Disbrow and Williams remained up all Friday night watching for the results of the freshet, which came upon them Saturday. It can hardly be conceived that such a gentle stream as Rocky River could demonstrate such a fierce current as that which run on Saturday, bearing everything before it.

It is gratifying to note the reliance which the weather bureau places upon its prognostications. The faith is beautiful and has the tendency to command the admiration of the sailor man and give him confidence in a system so persistently carried out to practical demonstration. The signal man, in fact, is infallible, especially in the flag he flies in the winter season to warn against the approach of a cold wave; he has the deadwood on it. The cold flag wave was nailed to the mast ten days ago and it is still there; it will remain there until the cold wave approaches. After the center has passed it will be taken down.

Moore & Bartow, Captain W. W. Morse, and others have bought the steamer Siberia, of Captain James Davidson. Captain Morse will sail her.

The verdict in the case of Frank Baptist, administrator vs. the Farwell Transportation Company, was for the plaintiff and the damages assessed amounted to the sum of $2,250.

The steamers N. K. Fairbank, Vienna, Havana, H. B. Tuttle and Moore & Bartow's new steamer are all to be supplied with a purifier, manufactured in Cleveland by Mead & Thomson. These orders are given after satisfactory tests on the steamers Sparta and Oscar Townsend last season.

Allen M. Cox, Esq., of Conneaut, Ohio, has been in attendance upon the United States circuit court from the commencement of the case of Frank Baptist, administrator vs. the Farwell Transportation Company, until its close, as the attorney for the plaintiff. Mr. Cox began the practice of law at Conneaut at the age of twenty-seven years and was occupied during the twelve years previous in navigating the great lakes in the capacity of a sailor during which time he prepared himself for the law.

BUFFALO.

Special to the Marine Record.

The surveys for the Inland Lloyds are mostly completed, and compiling of same will be commenced next week by Captains McLeod, Rounds and Rice.

Captain A. McDougall, of the firm of Rogers & McDougall, vessel agents, returned Monday from his journey west.

Captain D. P. Dobbins has received a communication from B. L. Pennington, secretary and treasurer of the Cleveland Vessel Owners' Association, asking him to recommend to General Superintendent S. I. Kimball, the establishing of a life saving station at Ashtabula Harbor, as the largely increasing vessel trade at that port renders it necessary for a life saving station to be located there. Last season some 582,000 tons of iron ore were unloaded from vessels arriving at that port, and over 400,000 tons of coal loaded on vessels consigned to various lake ports. Captain Dobbins highly approves of the project and considers it important and necessary, and has submitted the matter to General Superintendent Kimball, recommending and approving the same.

Last week's sunshine and rain got rid of nearly all the snow, and the ice in the creek was partly broken up, making it look as though navigation would soon commence, but on Monday all such hopes were dispelled by the coming of a heavy snow storm which lasted all day, since which time the cold has been intense, and another spell of winter weather has set in upon us, and the merry sound of the shipwright's hammers, which resounded at the shipyards and around the creek last week, have almost ceased.

Captain D. P. Dobbins has submitted to Wm. Hingston & Son., yacht and boat builders, his designs, and they are getting out a model for a cat rigged sailing yacht, which will embrace the many excellent qualities of the Dobbins life boat, self righting if capsized, self bailing if swamped, and totally unsinkable. Her hold below deck will be all solid frames of pine which will serve for ballast and make her below deck impervious to air or water and proof against staving and bilging. Her discharge ports will be placed in her center board case instead of upon her sides, as in the Dobbins life boat. The model and ballasting of the boat will be such that it will be impossible to capsize her under canvas in open water. Only in a heavy surf is there a bare possibility of such an accident occurring. She will be about 25 feet long, and if successful as Captain Dobbins anticipates, it will mark a new era in the way of safe pleasure boat sailing.

The captains of the steamboat lines at this port, are making excellent progress in Captain Bradford's navigation class, and the members of the Lake Pilots' Aid Association are using their best endeavors to become perfect in the science of navigation.

WILLIAMS.

ERIE.

Special to the Marine Record.

The new United States fish hatchery, established at Erie last November, is in good working order, under the superintendence of Mr. W. F. Page, of Washington, and some 16,000,000 white fish will soon be ready to place in the lake.

At W. W. Loomis' shipyard there is being built for E. D. Carter, fish dealer, Erie, a fish tug, 51 feet over all, 11 feet beam, 4 feet depth of hold. Noble & Hall are building two 7x9 engines for her and a steel boiler 4 feet 2 inches diameter, 8 feet long. The keel is being laid for a fish tug, 54 feet over all, 12 feet beam, 4½ feet depth of hold, for Louis Struber, fish dealer, and Captain John Dash, who will command her. Noble & Hall will build the engine, 12x12, and a steel boiler 4 feet 4 inches diameter, 8 feet long. W. Loomis will soon commence repairs on several vessels and yachts.

The P. & E. R. R. Company are erecting a new trestle, 47 feet high, with twenty-four pockets, each of which will have a capacity of about 100 tons of coal, constructed for the easy and rapid loading of steam vessels.

Captain Paul Howell, who was mate on the propeller Havana last season, and who formerly commanded the steamer City of Montreal, will go mate on the steambarge Superior, of the Bradley line, with Captain Moran the coming season.

The Anchor line propellers Conestoga, Wissahickon and the schooner Anne Sherwood, laid up at this port, are undergoing necessary repairs and calking, to make them in good shape for next season's work.

THOMAS.

MILWAUKEE.

Special to the Marine Record.

Marine notes here are confined exclusively to the shipyards, as there has been but two vessels loaded with grain at this port up to the present time, namely the schooner Porter and H. M. Scove. The steamer Minnesota came out of drydock at Wolf & Davison's shipyard on the 9th inst. and her repairs will be completed in about three weeks. She has been raised two feet giving her a carrying capacity of 1400 tons, or 200 tons more than she previously had; her alterations will make her one of the most handsome appearing steamers on the lakes. Captain Wm. Donahue, superintendent of repairs for the I. O. T. Co's. Line, is superintending her alterations.

The steamer J. R. Whiting, of the L. M. & L. S. Line took her place in the drydock on the 9th. She will be lengthened forty feet and spread three feet. She will also have new decks and steel arches 15x3/4 inches. Captain McArthur arrived from Goderich on the 12th to superintend her repairs.

The steambarge being built, under Captain Carter's supervision at Wolf & Davidsons is progressing finely. She will be iron strapped, and when completed her appearance will fully sustain the assertion that she will be the finest model and staunchest vessel of her size afloat.

The steamer Colin Campbell will have a new boiler and new cabin; also some minor repairs.

The steamboat schooner Penobscot is almost ready for sea and Captain Charley Johnson is walking around stroking his beard and praying for the opening of navigation, so that he can try for 72 trips this season.

The Whales drop in occasionally at Wolf & Davidson's office and build vessels and steambarges and sail them from Skillagalee to Hong Kong via Wolf & Davidson's office stove. By the way that same stove is a very pleasant place for the Evangelists to weather the horn around. Ed. Thorp was here from Buffalo last week; he can warble the Little Widow Dun very nicely. Great singer, is Ed.

Captain Dennis Sullivan, the popular commander of the schooner Moonlight, has done with wind boats. He will have charge of the steambarge Joys until the Milwaukee Tug Company's new steambarge is completed, and then take command of her.

Capt. Angus McDougall, who has charge of the Buffalo vessel-broker business of his father-in-law, the late Captain Rogers, spent several days in Milwaukee last week. He left again for Buffalo.

Captain Dan Nelson, late of the schooner Granger, has purchased one-fourth interest in the schooner John Schuette for $1,200. He will assume command of the craft on the opening of navigation. Rumor assigns Captain John Crane to the Granger.

The steambarge John R. Whiting and schooner David Vance have been chartered to carry iron ore from Twin Bays, on the north shore of Lake Superior, to Ohio ports, during the coming season, at $1.30 per gross ton. The Whitney will tow the Vance.

Captain Jas. Pratt had a gang of calkers from Wolf & Davidson's recalking the Tioga's main deck last week. A fine man to work for is Captain Pratt and we wish that he had several more vessels here to repair. Well, I will close as I must save a budget for next week, and I will send you several subscriptions next week also.

Q.

CHICAGO.

Special to the Marine Record.

All of the towing tugs of Chicago, outside of the R. Dunham, towing and reckling tugs, and the vessel owners tugs, have formed an association under the name of the "Chicago Towing Co," of which William Harman is to be the manager. The office will be at Wells street, bridge. The old office is to be occupied by the Union tug line. Captain St. Clair will be the superintendent and Messrs. Van Dalson and Dean will have positions in the office of the company. Captain John Crawford will be assistant superintendent. This line will control twenty tugs and expects to do a prosperous business unless there should be a war on prices, in which case it expects to maintain its own.

On account of the recent warm weather many of the boats lying along the docks are being repaired, painted and overhauled in general for the coming season.

Vessel men in Chicago are hopeful for a good season; profitable freights and sufficient employment is looked forward to by all. It is said that no season since 1880 has looked more promising. The price of vessels is high with a good demand for lumber and cedar carriers.

Admiralty law business, so the lawyers say, never has been poorer, and one of the members of the profession informs your reporter that unless it improves he will quit practicing law and take the captaincy of a Chicago tug. This will at least assure him a good time and a large salary or he will apply for the United States inspectorship of hulls, for which position there seems to be great demand.

Charles Finney, a familiar face about Chicago, died at his home on Park avenue, after a lingering illness of some weeks. He was a member of the ship chandler firm Finney Bros. He was a man respected and loved by all who knew him, always kind good natured and happy.

H. Cannon & Company, ship chandlers, are soon to remove their place of business from Water street, to Market street, between Lake and Randolph, their present quarters being too small to accommodate their large and growing business.

A new keel is being attached to the yacht Zephyr, which is lying at the dock in South Chicago. The yacht belongs to the Chicago Yacht Club and will be, when completed, one of the finest yachts on the lakes.

MAYO.

Paper

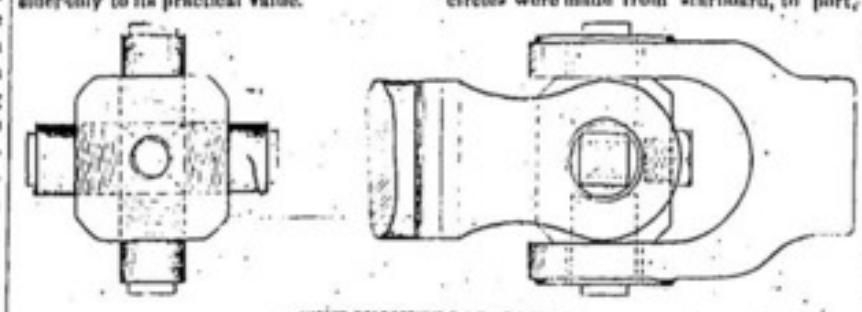
KUNSTADTER PATENT SCREW STEERING PROPELLER.

Mr. J. J. Kunstadter, inventor of the above appliance, was in Cleveland last week and exhibited to a number of our marine men and engineers the merits of his invention. We take pleasure in presenting to our readers engravings of the wheel as applied and the details of the universal joint.

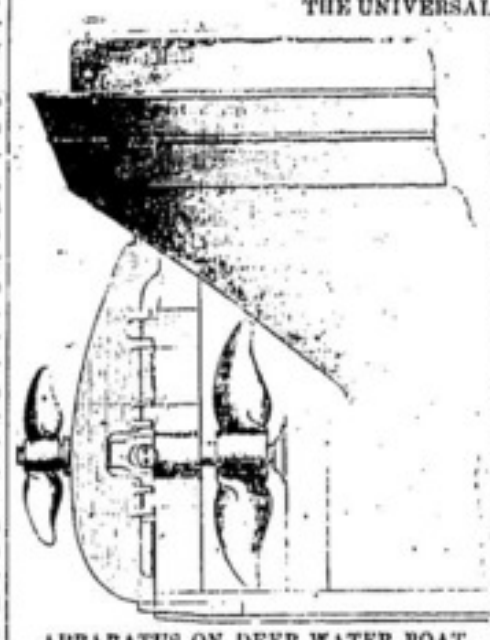
The report of the board of engineers, appointed by the Secretary of the Navy, last winter, in a series of trials of the Kunstadter apparatus on the steamer Nina which was submitted to the navy department last June, has been made public in a pamphlet covering about 200 pages, freely illustrated. The board consisted of Chief Engineer Thomas Zeller, President; Chief Engineers G. W. Magee and G. P. Hunt, assisted by P. A. Engineers Stevens, Brown and Nagle.

The entire subject is investigated in the report. The vessel was tried from 10 to 45 deg. from starboard to port and from port to starboard. With the two steering systems the following are the turning results obtained at maximum, the vessel in each case making the speed of three geographical miles per hour on the circumference of the turning circle. With the rudder alone in use, and at the angle of 45 deg., the position at which it gives the maximum steering effects, the diameter of the turning circle was 520.543 feet. As the length of the vessel on the water line was 137 feet, the diameter of the circle was 3.8 times the vessel's length. The rudder when used alone was of enormous dimensions proportionately to the size of the vessel, being about 2½ times as large as is habitually given for sea-going vessels. This proportion gives an uncommonly small circle for a vessel to turn by her rudder alone, and is the result of excessive dimensions of the latter relatively to the former. With the Kunstadter apparatus in use, the rudder and the axis of the steering screw being at the same angle of 45 deg., the diameter of the turning circle was 314.181 feet. The length of the vessel on the water-line being 137 feet, the diameter of the circle was only 2.2933 times of the vessel's length. The diameter of the turning circle with the rudder alone was 65⅔ per centum greater than with the Kunstadter apparatus. The time required to make the respective circles was in direct ratio of their diameters. With the proportion of rudder and screw relatively to size of hull, habitually given to sea-going vessels, the Kunstadter apparatus could cause a vessel to make a circle on half the diameter required with the rudder alone, either going ahead or astern. "In naval warfare," the board says, "too high a value cannot be set upon the ability of a vessel to turn on a greatly smaller circle and in much less time than her antagonist." The manœuvering superiority given by the Kunstadter system is so great over the rudder alone, that it would probably decide the victory in a naval engagement in which the vessels were otherwise about equally matched. It would enable a vessel possessing it to ram her enemy or avoid being rammed by him; to select the position relatively to the enemy that was the weakest for him and the strongest for her; and in a fleet fight, would enable the vessels on one side having the Kunstadter system of steering to concentrate in a smaller space and crush an enemy by consequent superior weight of fire. More vessels having the Kunstadter system of steering could be opposed to fewer vessels having the rudder alone, because the former could be manœuvered as safely and as promptly in a very much less space. The board regards as single screw vessel properly equipped for war that has the rudder alone for its manœuvering power when the Kunstadter system is available. The argument in favor of adopting the Kunstadter system for safety, is applicable to all screw steamers, merchant as well as naval. That system would avoid many collisions, besides being of great value as a convenience in the saving of time and trouble in manœuvering vessels in restricted space. The apparatus is considered by the board, mechanically, very simple, and can be easily applied to any screw vessel now in use. It has the least mechanism for the steering effects produced that has ever been proposed; it is but little liable to derangement or accident, and it does not require any special adaptation of engine. A minute examination made by the board of the universal joint and other parts of the Kunstadter apparatus, after long and severe trials to which they had been subject, showed that there had been no sensible wear or deterioration—the tool marks of the pins and bushings still remaining unefaced. During these trials the vessel was in the same trim and draught of water 9 feet and 3 inches. The experiments were made in the most skillful and complete manner, every quantity involved being ascertained by direct measurement beyond the possibility of sensible error. They were made with the rudder alone and with the Kunstadter apparatus, and for three different rates of speed. An Isherwood speed indicator, invented expressly for these trials, was used.

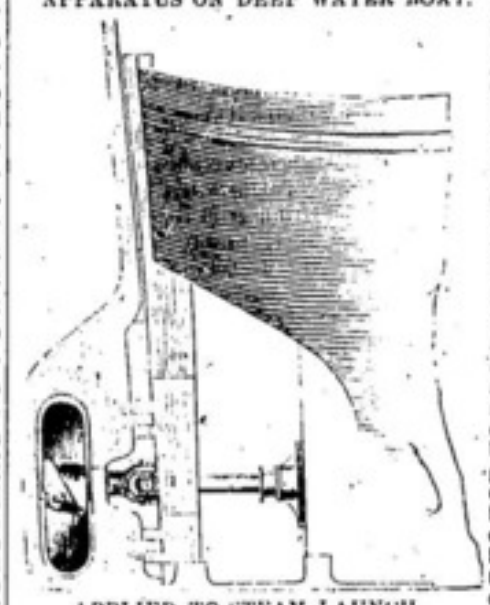
As regards the arrangement of the apparatus little need be said, the illustration offering sufficient explanation to enable our readers to get a very good idea of its more prominent features and to understand its method of working. It will be seen that the shafts carrying the two screws in the Kunstadter system are connected by a universal joint, enabling the smaller or after screw to be turned either to starboard or to port up to an angle of 45 deg., and thus adding its influence to that of the rudder in turning the vessel. The rudder itself may accordingly be made much smaller than is ordinarily the case without in the least detracting from the superior manœuvering capacity of the ship. The proportions of the screws, moreover, are made such that the smaller screw supplies to a certain extent what is lost by the slip of the larger one, representing in all cases a quantity not to be ignored. The universal joint itself has several features of excellence, and presents advantages which are not found in the device as ordinarily constructed. It consists essentially of three parts, which are made of phosphor bronze, the pins, on the other hand, being of steel. These are five in number, so arranged that one of them acts as a lock for the others, preventing them from working loose and giving rise to accident. This arrangement is illustrated in Figs. 2 and 3. Simplicity in all its details is thus one of the characteristic features of the whole apparatus, adding considerably to its practical value.



THE UNIVERSAL JOINT.



APPARATUS ON DEEP WATER BOAT.



APPLIED TO STEAM LAUNCH.

The trials to which we briefly referred above were made in the Hudson River and in New York Bay, near New York City, during December, 1884, and the succeeding January, February and March; with results demonstrating beyond a doubt the exceptional and highly important advantages which are claimed for the Kunstadter apparatus are great. The experiments were made in the most skillful, thorough and complete manner, every quality involved being ascertained by direct measurement beyond the possibility of sensible error, and the figures obtained reflect great credit upon the inventor of the appliance, Mr. J. J. Kunstadter, of New York. The trials were made with both the rudder alone and with Mr. Kunstadter's arrangement by turning the vessel in complete circles to starboard and to port for every 5° difference of rudder angle from 10° to 45°, and for three different rates of speed. The circumferences of the circles were measured by an instrument specially designed by Chief Engineer F. R. Isherwood, and the power developed by the engines during the trials was carefully determined by over 13,000 indicator diagrams. The personnel of the board was sufficiently numerous, together with three assistants, to make simultaneously all the observations required. The rudder, when used alone, was of exceedingly large dimensions proportionately to the size of the vessel, being about two and a half times as large as is habitually given for sea-going vessels.

The same remark applies to the large screw of the Nina, which, we understand, had also about two and a half times as much surface as is usually given to sea-going steamers proportionately to the size of vessel. Trials were also made of running the vessel backward at full speed when supplied with the Kunstadter gear, the results being given in the following table:

Degrees of rudder.	Diameters or circles in feet. With Kunstadter device.	Withrudder 2½ times ordinary size.	Backing at full speed with Kunstadter device.
45	295.042	520.433	1,003.402
40	346.606	520 543	.....
35	408.903	553.950	1,160.692
30	487.588	611.071	.....
25	592.851	679 520	1,193.631
20	747.075	800.821	.....
15	941.786	1,041.086	1,345.477
10	1,475.569	1,521.865	.....

Comment is unnecessary, the figures in this table speaking for themselves. For each degree 12 circles were made, six to port and six to starboard, the mean results being taken as given above. No steering trials could be made going astern without the Kunstadter screw. With the device 48 circles were made from starboard, to port, and the vessel was backed for 40 minutes, reaching a speed of over 7.8 knots per hour. From the figures obtained it was found that the diameter of the turning circle with the rudder alone was 65⅔ per cent. greater than with Mr. Kunstadter's apparatus.

With the proportions of rudder and screw relatively to size of hull habitually given to sea-going vessels the Kunstadter apparatus could cause a vessel to make a complete circle in half the diameter required with the rudder alone. In naval warfare too high a value cannot be set upon the ability of a vessel to turn on a greatly smaller circle and in much less time than her antagonist. The manœuvering superiority given by the Kunstadter system is so great over the rudder alone that it would probably decide the victory in any naval engagement in which the vessels were otherwise about equally matched. It would enable a vessel possessing it to ram her enemy or avoid being rammed by him, to select the position relatively to the enemy that was the weakest for him and the strongest for her, and in a fleet fight would enable the vessels on one side having the Kunstadter system of steering to concentrate in a smaller place and crush an enemy by consequence of a superior weight of fire. The examining board in reporting upon the tests remarks, among other things, that "the argument in favor of adopting the Kunstadter system for safety is applicable to all screw steamers, merchant as well as naval. The system would enable many collisions to be avoided, besides being of great value as a convenience in the saving of time and trouble in manœuvering vessels in restricted spaces. But there is really no necessity to enlarge on the advantages of superior manœuvering power for vessels or to cite particular cases. These advantages are so evident and so numerous that they cannot be seriously contested by any one. Nor can they be neglected, except at a certain and great expense at some time in the life of a vessel. The Kunstadter apparatus is mechanically very simple and can be easily applied to any screw vessel now in use. It is the least mechanism for the steering effects produced that has ever been proposed; it is but little liable to derangement or accident, and it does not require any special adaptation of engine. A minute examination made by the board of the universal joint and other parts of the Kunstadter apparatus, after long and severe trials to which they had been subjected showed that there had been no sensible wear or deterioration. Trials were made during the winter season, in rough and bad weather, so that the apparatus could receive the most severe test.

In connection with this the following figures referring to the dimensions of the Nina will prove of interest: Length between perpendiculars, 137 feet; length over all, 154 feet; breadth molded, 26 feet; depth molded rudder, 12.50 feet.

Rudder surface before alterations, square feet	53.72
Rudder surface with Kunstadter screw, square feet	30.60
Rudder surface in favor of Kunstadter screw, square feet	23.12
Indicated horse-power	450
Main screw (diameter), feet	10
Steering screw, feet	6.66

Mr. Kunstadter's apparatus has been tried and is now in use on several English vessels, but the test with the Nina has yielded the most complete and valuable results yet recorded. We understand, further, that several steam yachts in this country are soon to be fitted with the apparatus, that represented by fig. 3 being especially adapted to the lake and river vessels.

MARITIME LAW.

PETITION OF THE GOODRICH TRANSPORTATION COMPANY, TO LIMIT ITS LIABILITY, ETC.—PHŒNIX ISS. ET AL. OPPOSING.

District Court of the United States, for the Eastern District of Wisconsin.

Charles E. Dyer, Judge.

Brief by Robert Rae, for respondent.

This is a proceeding by a vessel owner for a limitation of liability under the act of Congress known as the limited liability act.

The petition of the Goodrich Transportation Company is filed in the district court of the United States for the Eastern district of Wisconsin to limit its liability under the the act of Congress of the 3rd of March, 1851, entitled "An act to limit the liability of ship owners," on account of a fire that occurred on the 20th of September, 1880, at Green Bay in the State of Wisconsin, which is said to have originated from the steamer Oconto whereof it is the owner, and communicated to the real estate situated in the city of Green Bay.

The damages claimed for which the company seeks to limit its liability, amount to about $28,000, and it is said the value of the vessel at the time with her freight then pending amounted to about $12,000.

The company offers to enter into a stipulation with sureties to be approved by the court, for the payment of the value of said steamer and the amount of her pending freight into the court, whenever it may be ordered so to do, and a monition is prayed for against all persons claiming any damage of any kind, for any loss, destruction, damage and injury occasioned by such fire, citing them to appear before the court and make due proof of their respective claims, and that the court designate some commissioner, before whom such claims shall be presented, in pursuance of such monition, and before whom you petitioner may appear and contest such claims, and its liability on account of any loss, etc., and if the company is not liable upon the coming in of the report of said commissioner and its confirmation by this court, it may be finally so decreed by the court; otherwise, the money so secured to be paid into this court by such stipulation, may be divided *pro rata* among the several claimants in proportion to the amount of their respective claims; and in the meantime the respondents be restrained from further prosecuting their several suits, also all other persons about to commence suit, if any there be, be restrained.

Six suits were commenced in the fall of 1880 in the circuit court of Brown county at the city of Green Bay, by as many plaintiffs in an action of trespass on the case against the petitioner for the destruction of their dwelling houses and household property contained therein, to all of which said several suits, a general denial was filed. Verdicts from time to time were had by the plaintiffs and appeals taken to the Supreme court by petitioner, and one of these appeals is now pending.

Various dilatory motions were made by the petitioner, and changes of venue were had upon its application. That during the progress of these trials many thousand dollars of taxable costs were incurred and paid by the respondents.

After the date of the fire the owner of the steamer engaged her in many distinct and independent voyages, and until the close of that season of navigation, which occurred on the 20th of November thereafter, and it continued to employ said steamer for the years 1881 to 1885 inclusive. In the fall of 1885 it sold the steamer to parties living at Port Huron, and the vessel's home port was then changed to Detroit. That in the fall of 1884 the steamer herself became a wreck, stranded on Charity Islands, near the mouth of Saginaw bay, in the state of Michigan and on Lake Huron, and the steamer is no longer *in esse*.

During all this time the petitioner has never sought to avail itself of the benefits of the act of Congress, 1851, and it is claimed in the answer that it thereby equitably abandoned its right so to do, but on the contrary conceded its liability for the damages incurred, if any, by reason of said loss; and it is insisted that it would be manifestly unjust after a delay of over five years to allow petitioner, or to compell respondent to go back to said 20th of September, 1880, to ascertain and fix the then value of said steamer and her freight then pending.

That no part of the *res* is within the jurisdiction of this court. The case is set down for hearing upon the petition and answer.

I.

The petition is an original proceeding in the United States district court on the instance side of the admiralty, and is not a proceeding *in rem* by a surrender of the property, and a petition that a trustee or trustees may be appointed for the benefit of

Damaged F

such claimants as are entitled thereto, but is a proceeding simply to limit the liability of the petitioner by allowing it to give stipulation in the admiralty for the value of the offending thing, whereof it was at the time, the owner, obligating itself with sureties to pay into court whatever sum might be decreed against it by the court to the extent of such stipulation; which stipulation must in no case exceed the value of the vessel, and her freight then pending, and an attempt to remove a common law case from its appropriate jurisdiction into the admiralty which is without jurisdiction, thereby depriving the plaintiff of the right to a trial by jury.

II.

That the act does not embrace injuries to real estate and the property therein contained or torts done on land to property or things not engaged in trade and traffic, and commerce between foreign nations or among the several states, or with the Indian tribes but only injuries occurring through the default or treachery of the master or mariners without the privity or knowledge of the owner of the offending vessel, to property which is the subject of commerce and trade in transit on the high seas, the great lakes and the navigable waters of the United States.

The act is to be construed *inter se et sui homines*, and is to be confined to ship owners, foreign and domestic freighters, passengers and maritime merchants. The act is one of enumeration of the parties and things which are to be affected by it; and all the parties and things enumerated are limited to persons and things maritime. The first section exempts ship owners from loss or damage by fire to goods on board the ship; the second exempts the master or owner from loss or damage to jewelry, precious metals or money put on board the ship; the third section, to say embezzlement, loss or destruction by the officers, crew or passengers or any other person of any property shipped or put aboard said vessel, or for any loss, damage or injury by collision, or for any act matter or thing, loss, damage or forfeiture done or incurred.

No case can be found except that of the Thomas Hood, decided in the Northern district of Illinois, in which it was attempted by a proceeding similar to that of the case at bar, to apply the act of 1851 when the injury or tort was committed on land.

The court, without the benefit or argument, and without the question of jurisdiction being raised, in a short decision ruled that the act applied. The point was raised in the Plymouth, (3 Wall., 20) but the court finding it had no jurisdiction, on account of the tort not being one cognizable in the admiralty, declined to take any notice of it, and the fair reference is that the Supreme court was of the opinion that the act did not apply to such a case. All the mischief that is to be remedied by the ship owner having to respond to suits at common law, was present in that case.

The reasons assigned in the case of the tug Thomas Hood by the court in deciding the case, with all due respect to the ability of the judge who decided it, we think are far from being satisfactory. Congress in withdrawing river or inland navigation from the benefits of the act, had clearly indicated that for the injuries which a vessel might inflict along the shores of rivers, for those torts committed on the property on land of strangers in no privity with trade and navigation, the ship owner shall make full satisfaction in common with all other tort feasors. To otherwise interpret it the compensating law of reciprocity would be so violated and disregarded as to shock every sense of justice and equity. If such property on land should inflict a corresponding injury upon a vessel, the owner of such property could not have the benefit of any such act.

It was not the intention of congress to relieve the ship owner of all liability for the act of his servants, when such servants were mariners, or for injuries committed by them everywhere, on sea and on land. It was a sufficient encouragement to ship owners to limit their liability for the torts of their agents when those agents were beyond their control and on the high seas. It was an act dealing with trade and commerce, and with injuries and damage inflicted by or with persons engaged in this pursuit. It was an act having no reference to injury to real estate, or to things done on land. It might be, as was said by Judge Blodgett, important to the ship owner, that he should be relieved everywhere, both on land and sea, for the negligence and treachery of his mariners, but congress would never create a privileged class consisting of foreign and domestic vessel owners, whose servants might commit trespasses on land, and limit the liability of such a class, and refuse it to all other classes.

The first section of the act of 1851 supports and gives countenance to this construction; this section exempts ship owners from liability for losses on board of their ship by fire "unless such fire is caused by the design or neglect of such owner or owners," and the last section declares that the act shall not apply to any vessel of any description whatever used in rivers or inland navigation.

Therefore, the provisions of the act must apply only to foreign and American vessels not used in river or inland navigation, and to their owners, and the language of the third section, after providing for any loss by collision provides "for any act matter or thing, loss, damage or forfeiture occasioned or incurred without the privity or knowledge of such owner or owners, shall in no case exceed the amount or value of the interest of such owner," etc.

The first section of the act, Sec. 4282 of the Rev. Stat., confines the loss not only to goods shipped on board, and by reason or by means of the fire which happened, but "to the ship," or "on board of her,"—by this is meant a fire which happens to the ship physically, and does not apply to a fire where the ship herself is not touched by the fire at all. The statute means that the fire which happens to or aboard the ship must be the cause of the loss.

By judicial construction, the third section is extended to losses by fire happening without the privity or knowledge of the owners, but it certainly never was intended to extend the statute so as to embrace any other loss by fire except by means of fire happening to or on board said ship.

In cases where there is no limitation of liability for fire under the contract, and the limitation is purely by virtue of a statute, and where that statute is in derogation of common law, the onus is upon the party for whose benefit the statute is made to bring himself within the provisions of it. Under this first section, the owner is not entitled to the benefit of the statute, until he first shows that it did not happen by any neglect or design on his part. In absence of all proof, upon whom then is the burden of proof? Surely upon the ship-owner, fire being one of the losses presumed to arise from negligence in the absence of proof either way, this proof makes the owner guilty of negligence.

The exception by limitation of a statute would not affect the *onus probandi*. That statute merely provides that the owners shall be excused if the fire is not caused by his design or neglect, but he must prove these things. This, he and his servants alone can do. It is in his power and interest to show the facts, not so with the shipper or party injured. To place the onus upon them would be to deny them of remedy; 2 Richardson, (S. C.) 397, *id*, 286; 1 Strobhart 209, 218; Stokes v. Saltonstall, 13 Peters, 181.

Whatever might have been the ancient general maritime law is indifferent. It was the general maritime law of the United States at the time of the adoption of the constitution down to the time when the act of 1851 was passed by Congress, that the liability of the wrong doer for a maritime tort, when a vessel owner, for the acts of his servants required that he should make full satisfaction; and when the act was adopted, that permitted him to limit this liability, it was expressly provided as in the English act and all others, that it should not apply to any vessel of whatever description engaged in rivers or inland navigation.

[*To be continued next week.*]

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THE COMPASS.

One of the most delicate and important fittings in a modern vessel is the compass, and it is at present probably the least capable of control and less reliable than any other mechanical device upon which the mariner depends for the successful completion of his voyage and his safety. The magnetic north is a most irregular and troublesome datum on which to depend for regulating the course of a vessel, since it is constantly upon the move, having its periodical variation east or west of the true astronomical north. Of course this variation is known and tabulated for the use of mariners, but there are an infinity of small irregular variations of which no record can be kept, and which can at no time be foreseen. Apart from the aforesaid irregularity of the magnetic north, the instrument in common use as a mariners' compass is itself subject to a large variety of disturbances. This tendency to disturbance is now very greatly increased by the general use of iron and steel for the building of the hulls of vessels not only of the navy, but of the mercantile marine. Such hulls have themselves, particularly those made in steel, the power to become more or less permanently magnetized, and thus to present enormous deflecting influence upon the compass needle. The correction of these disturbing effects, together with the errors known as quadrantal, semicircular and heeling, are sought to be obviated by a variety of ingenious contrivances, such as the insertion of fixed magnets within or about the compass box, and further by the use of unmagnetic iron globes. Sir William Thompson has made his name famous for the multiplicity of ingenious devices that he has from time to time contrived for this purpose, and we see that he is again putting out further improvements dealing with these errors in a practical shape, for the benefit of mariners. But after all this has been done, and with every credit to the extreme ingenuity shown by Sir William Thompson and other scientists in effecting corrections of known errors, there still remains so large a margin of possible errors, which may arise from time to time, owing to the alteration of the magnetic conditions under which the compass was first set, that we cannot but feel that we are still far from having an instrument of such reliability as might be desired for the purpose of always indicating his true course to the mariner.

Probably in the course of another generation, so rapid are the present strides of improvement and invention, our descendants will be surprised at the complacency with which we put up so long with an instrument so generally known to be irregular and unreliable in its action as the magnetic compass. It is, of course, difficult to imagine or foresee in what way such an instrument may be superseded or replaced, but we may give our ingenious readers the benefit of such ideas as may strike us upon the subject. We have heard not long ago, of a compass still magnetic in its action, which claimed by the combination of two independent needles to indicate a duplicate error of deflection, whatever that error might be, one needle deflecting in one direction and the other deflecting in the opposite direction on either side of the true magnetic north. It is evident that should the action of this device be accurate in the above respect for all cases of disturbance, the mean reading of the two needles would always give the true magnetic north at any rate. Whether such a compass will be found in practice always to fulfil these conditions, we have no means of knowing, but we have not yet heard of such an appliance being ever successfully used at sea. We have again heard, that the light itself was affected by the lines of magnetic force running north and south; so that, could means be devised for clearly indicating this effect upon the light of day, by rendering it visible to the mariner, he would require no further indication as to the true magnetic north. Such an indication, were it possible to practically achieve it, would, at any rate, be uninfluenced by any local magnetic disturbances which would eliminate a great number of small irregularities. As a suggestion, we might point out that the true astronomical north is the center of the rotation of this globe, which takes place round its own axis, and we think it within the bounds of practicability that an instrument might be devised, while partaking of the rotary movement of the earth, to always indicate the direction of the axis of rotation. If this were possible, we might dispense with the magnetic needle altogether, and in that way avoid the whole of the irregularities arising both from local disturbances and from the irregular and known movements of the magnetic pole.—*Marine Engineer.*

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Commencing Sunday, Nov. 29 1885, at 12 o'clock noon the time given in the figures below is the new standard (Ninetieth meridian) time, which is thirty-three minutes slower than Cleveland time proper.

Eastward.	Arrive	Depart.
No 4, Fast Limited Express	*1 55a m	*2 15 a m
No 8, N Y, B & A Express	*6 25 a m	*6 50 a m
No 26, Elyria Accommodation	†7 45 a m	
No 21, Buffalo Ac'm'd'n via Sandusky	†10 30 a m	†10 50 a m
No 23, Toledo Accom via Norwalk	†10 30 a m	†10 50 a m
No 12, N Y & B Fast Express	*2 10 p m	*2 45 p m
No. 14, Special New York Ex		5 00 p m
No 2, Night Ex via Norwalk	9 45 p m	†10 00 p m
No 22, Night Ex via Sandusky	†9 40 p m	
No 28, Cincinnati Accommodation	†4 25 p m	

Westward.	Arrive.	Depart.
No 1, Fast Limited Express	*12 15 a m	*12 25 a m
No 25, Mich Express via Sandusky	*5 15 a m	
No 3, Chicago Express via "	†6 00 a m	6 30 a m
No 25, Mich Accom Norwalk		†6 30 a m
No 23, Toledo Ex via Norwalk	†12 30 p m	12 30 p m
No 5, St Louis Ex via Sandusky	*10 50 a m	*11 00 a m
No 9, Chi Fast Ex via Norwalk	5 15 p m	*5 45 p m
No 31, Elyria ac to Elyria only		†4 30 p m
No 27, Cincinnati Accommodation	†9 10 a m	

Sunday trains for Nottingham—Depart 8:35 a. m. and 1:45 p. m.; returning, leave Nottingham at 8:50 a. m. and 2:45 p. m.

Reference marks—* Daily, † daily, except Sunday, ‡daily, except Monday.

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EASTWARD.	Arrive.	Depart.
Buffalo Accommodation	*10 40 a m	*10 45 a m
Chicago Accommodation	*9 02 p m	
Local Freight	*11 45 a m	*12 15 p m
WESTWARD.	Arrive	Depart.
Chicago Accommodation		*6 45 a m
Fostoria Accommodation	*4 45 p m	*4 51 p m
Local Freight	*12 20 p m	*12 50 p m

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EUCLID ACCOMMODATION.
Depart—*8 24 a. m., *10 a. m., *5:05 p. m.
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Paper.

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Subscribers and others are respectfully invited to use the columns of the MARINE RECORD for the discussion of pertinent topics.

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Entered at the Post Office at Cleveland as second-class mail matter.

CLEVELAND, OHIO, THURSDAY, FEBRUARY 18, 1886.

A RIGHTEOUS DECISION.

Judge Brown, in the United States district court, Detroit, has just rendered an opinion on the question of shortage in grain cargoes, which will prove a valuable precedent for vessel owners and masters. The case was brought against the schooner Lizzie A. Law in an effort to recover the difference in the amount of grain called for in the bill of lading and the quantity actually delivered. Judge Brown declared that it was only necessary for the owners to show that all the grain received in the cargo was delivered. As all efforts at reform in the matter of shortage and bills of lading have heretofore proved of no avail this decision is highly gratifying, and if followed up by vessel men will prove of great value as a precedent.

No other branch of business in the country is subject to wrongs such as lake carriers are in elevator shortage without some form of redress, and the suggestion was made in the MARINE RECORD, Vol. VII, No. 38, that owners should refuse to account for more grain than they actually received, notwithstanding the terms of the bill of lading, taking their chance for justice before a court. If this were done the wrong of being obliged to pay for shortage, justly complained of, would soon disappear. It will be necessary, however, for owners and masters to adopt some system whereby shippers and receivers may be assured that the carrier is acting in good faith, and to prove beyond cavil that cargoes have not been breached or tampered with. Positive testimony to this end may be found in a system of sealing the hatches after the cargo is aboard, which should remain intact until by an official at the elevator at the port of destination, the seal is broken for the discharge of cargo. While it is not our desire to deny that officials of elevators believe that their finding of shortage is just we do say that if they could not realize on the quantity not produced their complaints would disappear entirely, as against the vessels, and it would then become a war of the elevators, and they would be foemen worthy of each other. That is, they would be compelled to seek redress where the cause or difference arose. It has been known for years that the elevator system of the country stands sadly in need of investigation by national, state and municipal government, but every effort to obtain legislation to that end has failed. If by this decision of Judge Brown the owners of elevators can be made to investigate each other we may, by logical sequence, look in vain for cargo shortage. It will have disappeared and become a thing of the past.

In case bills of lading can not be modified to conform to the new order of things, and notwithstanding the hatches are sealed, shortage still continues to occur, the vessel man should protest against payment and go with the case before the admiralty courts, where with Judge Brown's decision as a precedent, he has many chances in his favor. No elevator management has, to our knowledge, been led to confess that there is any chance for mistake in their system, or drafts or tally; but it is known that there is such mistake. Not only this; it is known that tally can be made to correspond, say at Duluth and Buffalo. Therefore if the complaint can be settled without looking too closely after the mystery of the elevators, by taking the difference out of the pockets of the elevator people, it would be a grand point gained.

STEAM ENGINE ECONOMY.

It unfortunately happens that there are exceedingly few records of engine trials on our lake steamers, probably owing to the expense and inconvenience of placing the necessary apparatus aboard for making an exhaustive and reliable trial. It is for this reason that we lay before our readers a comparative trial on the steamer J. H. Devereux, which was made last season by Mr. J. F. Pankhurst, of the Globe Iron Works, while on a pleasure trip up the lakes, to whom we are indebted for permission to make the results public.

The engine on which the experiment was made was tandem compound, the high pressure cylinder being twenty-seven and the low pressure fifty inch bore by thirty-six inch stroke. The distribution of the steam is effected by ordinary slide valves, with adjustable expansion valves at the back, and the engine was supplied with steam from an ordinary return flue boiler, ten and one-half feet in diameter and sixteen feet long. No preparations were made, such as cleaning tubes, cleaning fires, and having everything in the most favorable circumstances as is usual in regular engine trials. The object of the test was to get at the amount of coal actually consumed per indicated horse power per hour developed while doing ordinary every day work. Before the trial commenced all coals were cleared out of the fire hold. In commencing the experiment at 8 a. m., the coal was taken from on deck, accurately weighed, lowered into the fire hold in an ash bucket, and tallied by two men under the supervision of the chief engineer.

The water level in the boiler was marked, the pressure of steam noted, and the usual amount of fire in the furnaces, which was kept the same as though no trial was being made. The steam was kept at ninety four (94) pounds and only varied two pounds during the whole trial, which is remarkable, considering the fact that the fireman had no instruction to keep the pressure steady. When the trial stopped, at 12 m., the fires, water level, and steam pressure were the same as on the start, and the mean of seven observations, taken at intervals of about thirty minutes showed a water consumption of seventeen pounds, and the engine developing an indicated horse power, on a pound and sixty-three hundredths of combustible per hour.

The Devereux came out May 23 and laid up at Chicago November 26, 1885. During the season she made nine and one-half trips, running a distance of seventeen thousand and seventy-four miles, carrying forty one thousand seven hundred and seventy tons of freight, and towed schooners averaging eleven hundred tons each, a distance of five thousand four hundred and twenty-nine miles. Her average speed for the season was nine and eight hundredths miles per hour. The actual cost of fuel for doing the above work was 16.71 cents per mile, including harbor and all other work. When going alone her ordinary speed is ten miles, and when towing a twelve hundred ton vessel, eight and one quarter miles per hour, when cutting in small cylinder at twelve inches, or, when cutting at fourteen inches she will make eleven miles per hour, when going alone in smooth water, with a cargo of twenty-two hundred tons.

OBSTRUCTION TO NAVIGATION.

Colonel O. M. Poe has been instructed by the Secretary of War to make report to the department regarding obstructions to navigation in his district and in compliance with this order makes the following charges and suggestions:

"The present project for improving Saginaw river, which consists of making a channel of twelve feet in depth from the head of the river to the Portsmouth bridge, Bay City, and of fourteen feet thence to Saginaw bay, provides for a channel 200 feet wide. In laying out the lines of the proposed channel it has appeared desirable in most localities, where navigation is obstructed by bars or shoals, to establish these lines so as to connect the deep water above and below each shoal as straight and direct as possible. In such cases some of the mill booms or store booms may be considered obstructions in the prosecution of the project of improvement, even though they were located and built by their owners before new channel lines were projected by the government.

"The Saginaw river is spanned by nine bridges. None of these can be considered as interfering with free and safe navigation, except, in a general sense, upon the hypothesis that all bridges are obstructions to some extent, and are built wherever the necessity for safe intercommunication between two shores of a river is greater than the inconvenience or damage to the navigation of the stream.

"Paramount in importance to the location of booms and bridges in reference to projects of river improvement is the location and construction of lumber docks by private parties owning mill property upon the shores of Saginaw river. Mill owners have always built and extended their docks into the river as far as they needed the facilities for storing and shipping the products of their mills, regardless of how far these structures might encroach upon the navigable channel of the river or interfere with present or future projects on the part of the United States for the improvement of such channel.

"Where mills are located on directly opposite sides of the river notably in the cities of Saginaw, East Saginaw and Bay City, the building of lumber docks out into the river in this arbitrary manner has in many localities narrowed up the navigable channel to an extent which is likely to, and in some cases does, interfere with the preparation and execution of a general project for the permanent improvement of the river. The local authorities of the above named cities have prescribed certain dock lines up to which lumber docks may be built, but as these lines were not determined in conformity with any government project, they cannot be adopted or considered of value by the United States.

"As the lumber business increases every season, and more facilities for storing and handling lumber are constantly required, and as the mill owners themselves are interested in all government improvements in aid of navigation, it seems appropriate that the United States engineers should be given jurisdiction over the location and constructions of all docks built or proposed to be built on Saginaw river adjacent to the navigable channel, as well as over the location of booms and bridges. By means of such authority on the part of the United States the arbitrary encroachments on the river channel by docks and booms could in future be checked, while, on the other hand, many mill owners would be enabled to extend their docks so as to come up to an established dock line, which may be determined in connection with the general improvement of the rivers by the United States."

We are indebted to the Duluth Herald for the estimate given below of the lumber shipments by lake for the coming season, and, added to what has gone before in these columns, will certainly assure vessel men of a prosperous season, and give them courage to hail the freight market: The Duluth Lumber Company have contracted to ship 30,000,000 feet of lumber to Chicago by lake, most of which is to find a west and southwestern market. It is supposed that the railroads west and southwest from Chicago will give sufficient rebate to pay for the lake freight from the port of Duluth to the port of Chicago, thus depriving the railroads leading southwest from St. Paul from getting this business with their high tariff. The lake freight from Duluth to Chicago will be about $1.75 per thousand feet. The shipments of lumber next year from this port will be very large. Last year 5,000,000 feet of lumber were shipped from Duluth to Saginaw and nearly a million bushels of wheat to Milwaukee. This year the same will be done, only to a greater extent, and this year a good portion of our lumber is sold to Buffalo and Albany parties, to be shipped by lake, commencing on the opening of navigation. The shipments by boat from Duluth to lower lake ports will be greater this year than ever before. The output of iron ore will increase 50 per cent., the wheat trade is growing and beside these the lumber shipments by lake will increase from nothing of a year ago to mammoth proportions. All this means a great addition to the tons already trading to Duluth.

Science says that Lieutenant Dyer of the United States hydrographic office has compiled from the "Monthly pilot charts" a hundred or more accounts by sailors of the use of oil to lessen the dangerous effects of "combing" of heavy seas during gales of wind. The hydrographic office has so far only aimed to record the experiences of mariners as reported at that office, and has not taken any decided ground as to the merits of the controversy. The mass of evidence collected is sufficient, however, to warrant the careful testing of this claim of the efficacy of oil in stilling troubled waters and the government should at an early day detail some officer, and supply him with a vessel, that proper experiments may be made. So far as the sailors' yarns go, it appears that mineral oils are not so effective as vegetable or animal oils; and it is interesting to note that their evidence has led some of the insurance companies and steamship lines to insist upon the use of oil when occasion should require.

THE CLEVELAND CITY FORGE AND IRON COMPANY.

One of the busiest and most enterprising forges in the country is that conducted by the above named company, under the immediate management of Captain L. M. Coe, in Cleveland. The furnaces roar and flame proudly, as if they were aware of the honor of turning out on the immense cranes the glowing iron to be shaped into form upon which the wheels of commerce will revolve throughout the United States, on the mighty ocean and capricious lakes and rivers, on the rail and in the mills. It is worth recording that the principal eastern shipbuilders, those on the Delaware river, in New York state, and in New England, in fact the shipyards from Maine to Georgia have their heavy work done by the Cleveland city forge.

The company has been twenty three years in business in this city, and in 1881 they began to build on the present site and commenced work there the 31st of July, 1882. In and around the buildings, wind many tracks to convey the iron, crude and manufactured, from place to place, and piles of scrap and ingots are being actively made ready for the furnaces by hundreds of workmen. The ponderous hammers return their heavy sound as they fall upon the yielding iron shaft weighing hundreds of tons, and the huge lathes busily turn the product of the hammers to a finished article ready for its place on shipboard.

When the firm commenced to build on the ground now occupied it was thought that they had calculated on due increase of business, but before the end of the third year they realized the mistake. In fact, a visit to the forge will convince one that the manager has carte blanche to provide for the workmen any tool that the requirements of trade demand, from the most ponderous fifteen ton hammer to the delicate automatic machine that cuts right and left thread on the turnbuckle, while conversation with the foremen who preside over the labor of each department will show that the object of the company has been to place in charge of every department the best mechanics to be found in the United States.

The original hammer shop was 820 by 90 feet, to which has been added 120 by 80 feet, and in which there are thirty-nine furnaces, with twenty-two hammers, ranging from one-half ton to fifteen tons, which are served by upward of sixty cranes, with capacity of one-half to one hundred tons, and beside the other work, five hundred car axles can be turned out daily.

To accommodate the blacksmith shop it was thought that 120 by 45 feet would be sufficient, but it has been found necessary to extend it 75 by 100 feet, which will be done at once.

The turnbuckle shop, 165 by 40 feet, has also proved too small for the business, and an addition has been erected, 99 by 45 feet, with a further addition to be made in the spring, 20 by 75 feet. This shop now contains three machines and one other building, and has six furnaces. The work is all done by pressure in dies and the form and welding are perfect. The link and pin shop is 312 by 65 feet.

The old machine shop, which was 105 by 80 feet, has been enlarged by the addition of a building 120 by 45 feet, and another structure, 105 by 60 feet, will be erected to accommodate new plant soon to arrive. This addition will necessitate the removal of the office.

In addition to the buildings detailed, there are twelve others, including store houses, pattern shops, tool houses, etc., etc., covering hundreds of feet.

As has been said the rapidly growing business of the forge has demanded the addition of the largest and most approved plant. Among that which has been added during the year is an upright fifteen ton hammer served by two one hundred ton cranes which are the largest in the country, and two fifty ton cranes. Each crane is worked by two engines beside a double engine to rotate them. The furnaces are 22x11x9 and there are two large boilers. In the machine shop there is a new double head lathe, built in Scotland, 65 by 60 in the swing, and two 62 inch swing lathes, one with 36 and the other 34 feet. There is one lathe yet to arrive, the largest ever built in this country, which is 10 feet swing and 34 feet long. There is also a new boring mill in this shop, with a swing 16 by 5 feet, and another with a swing 5 feet square; a planer 7 feet square and 40 feet long, and another to arrive 8½ feet square by 36 feet long; and a slotter 56 inch stroke and one 30 inch stroke, each weighing sixty tons. In addition there is a large variety of smaller tools to work in every department.

Every day huge shafts or cranks, turn-

Damaged P

buckles, links and pins or axles are shipped by the car load, and all will acknowledge that this is an enterprise of which Cleveland may be proud. The officers of the company are: President, R. H. Harman; vice president and general manager, L. M. Coe; secretary and treasurer, G. F. Ely; assistant manager, R A. Harman.

OBITUARY.

Captain James Donley, of East Saginaw, died at 7:30 o'clock February 10. Deceased has been ill for some time past, suffering with a complication of liver and kidney troubles, which finally proved fatal. The captain was born in Ireland in 1830, and came to America when but a child, his parents settling in Hamilton, Ont. He made East Saginaw his home some thirty-one years ago, and first worked in a mill there, later on acquiring an interest in what was known as the Burnham & Still mill in South Saginaw. When this mill burned down in 1866 he bought the old side wheel steamer Alida, which many will remember. After that he branched out into the vessel business more extensively and has since owned many a craft whose names are familiar to all interested in marine matters. At the time of his death Captain James and his son Edward Donley owned barges J. E. Sparrow and E. F. Gould. Last season deceased sailed the Sparrow and his son the Gould. Captain Donley leaves a wife and two sons to mourn his loss. The funeral took place from his residence, 421 South Washington street, on the 11th and the remains placed in Brady Hill cemetry.

[*Around the Lakes Continued from 1st Page.*]

DETROIT.

Special to the Marine Record.

Feb. 10.—Notwithstanding the alternate cold snaps of the present winter the opinion is quite prevalent that there will be an early opening of navigation, and already a movement has commenced arranging for steamers to ply on the rivers. The steamer Idlewild has been taken in hand and her machinery is being overhauled and improved, so that she will be in complete readiness to commence plying as soon as the opportunity is offered.

Since my last letter the steamer Northwest has been removed from her winter moorings to the Detroit Drydock Company's shipyard, and the work of converting her into a river boat is already well advanced. She has been shorn of her upper works, and instead of her former graceful appearance she looks like a skeleton. It is thought that with the alterations in contemplation she will be improved in speed, with less side out of water, while her cabin arrangements will be entirely changed for the better, and give ample space for the accommodation of excursionists who largely patronize the route. Her length will be the same.

A visit yesterday among several steamboat owners and agencies afforded no enlightenment relative to appointments, for the reason that the season is not far enough advanced.

Advices from Mackinaw, up to Saturday last, report the Straits not in bad condition, and that up to that date no teams had been able to cross that thoroughfare, while the steamer Algomah's trips are being performed with unusual regularity.

The mild spell of weather a few days since cleared the river almost entirely of ice, but on Monday another cold wave found its way here.

The principal excitement within the past few days in this locality, and which rarely occurs, is a strike among the ship carpenters, at two or three points. Meetings have been held and the subject warmly discussed, but at this writing nothing definite has been arrived at. Yesterday it was stated there were two hundred and fifty men, all told, who were idle. They demand $2.25 a day for ten hours' labor. The men in the eastern part of the city have been receiving $2 per day for ten hours' work. At Springwell's and Wyandotte the same wages have been paid for nine hours' time. The companies are to-day having the question under consideration and there is but little doubt the difficulty will be satisfactorily arranged. No one hereabout has ever heard of a strike among shipmasters for the very reason that there are too many on the anxious seat, and likely to remain there until long after sailing has commenced.

Wednesday and the day following the United States marshal will dispose of the tugs and vessels, owned by Murphy Bros., which may open up a chance for a few of the disconsolate, and not a few are patiently awaiting the coming results.

Thomas W. Noble the Detroit sail maker, has ordered from New York city some canvas such as the yacht Puritan's sails were made of. It is of a superior quality, and Mr. Noble will use it for some new yachts now in process of construction in this city.

Charles Potter made a foolhardy attempt to navigate in a small boat through the ice from Windsor to Detroit. His brief experience taught him that the thing could not be done. The ice jam carried him well down the stream, when the ferry steamer Victoria went to his rescue and brought him safely to dock.

Quite a number of vessel owners here, in view of Judge Brown's decision on the shortage question, are going to unite for the purpose of breaking up the elevator shortage business, and in order to effectually carry out such a proceeding, when their vessels are loaded with grain, the hatches will be sealed for the voyage when it will be proved by the seals and the testimony of the crew that the cargo was not disturbed while en route. Should this not prove satisfactory to consignees the first case of shortage will be taken into the courts.

James T. Reid, vessel agent and broker at Duluth, was in this city yesterday en route homeward, wind and weather favorable. Captains Riordan and M. J. Gavin, of Buffalo, had a few hours sojourn here also.

J. P. Donaldson & Co. will furnish the entire fit out for the steamships Nos. 74 and 76, building by the Detroit Drydock Co.

Messrs. McWilliams & Co. had decided in the superior court of this city a claim in their favor of between $400 and $500 against the Murphy tugs, and also a second claim of $1,200, due same parties, to satisfy which a steam pump which was a part of the Kate Moffat's outfit, was seized and will be sold.

A case of long standing is now in the courts here, in regard to the rightful ownership of the barges C. H. Weeks and Keepsake, which were purchased in 1881 by John E. Potts, lumber dealer at Oscoda and resident at Detroit. At the time of purchase it is claimed that Mr. Potts was not a naturalized citizen and both vessels were accordingly seized and released under bonds. The attorney for Mr. Potts claimed that action in the matter should have taken place within three years. Judge Brown, however, decided that the statute of limitation runs for five years and the libels will be proceeded with immediately.

Another decision was also given by Judge Brown on Saturday, bearing upon the question of liability on the barge Church for damages done to a bridge at Black River in Port Huron in the spring of 1884. Aside from the valuation of the barge the owners were sued for whatever discrepancy might arise. They asked that the city be restrained from presenting the suit in the St. Clair circuit court. A temporary decree was granted which will be made permanent if the city's claim is found to come within the statute. Proof will be taken in regard to this and all other claims against the vessel.

HALL.

MT. CLEMENS.

Special to the Marine Record.

The work on the towbarge Nellie, which is to be fitted up for a passenger boat, is progressing very rapidly. The frame for her cabin is all up, and about half of the cabin is completed. She will be ready by the opening of navigation.

Abutments, with piles, are being erected at Market street bridge, and considerable oak planking is to be laid. The work will be finished in thirty days. The job was let for $950.

The city is building a new dock at the foot of Shelby street, which will be 250 feet long, made of oak and filled up solid, and will be completed in fifteen days.

Engineer George Pelkey, first engineer of the J. S. Ruby last summer, lost his right eye by having an eye-tooth extracted last fall. He has been very sick all winter, but is now rapidly recovering and will probably be well enough to sail when spring opens.

L.

LUDINGTON.

Special to the Marine Record.

This has been a remarkable week for business across Lake Michigan, the F. & P. M. steamers, each making four round trips in six days. The weather has been mild and rainy with very heavy fog.

Captain Carter, formerly of the steamer Marshall F. Butters, is getting on finely with his new steamer at Milwaukee. As yet no appointment has been made to fill his place.

The captains of the railroad steamers report very little ice between Ludington and Milwaukee.

D.

ALGONAC.

The saw mill at Walpole Island is running at full blast, getting out a large quantity of ship timber, for W. B. Morley, of Marine City.

Captain Mottie and son are up here from Detroit on their way to the flats to commence sounding the canal for the spring dredging.

SAULT STE. MARIE.

Special to the Marine Record.

The following craft are wintering here: Propellers Ste. Marie, J. W. Steinhoff; tugs E. M. Peck, Myrtle, Myra, John Hickler, Clara Hickler, Laura Hickler, John Upham, H. W. Seymour, Pioneer, Richard Endress, Bertha Endress; steamer M. S. Trempe, and ferry boats Antelope and Flora Holden. No particular changes have been made as to the masters, only Captain Thomas Stafford sails the palace steamer Ste. Marie. She is to run as usual on the route from the Sault to Cheboygan. The appointment is a good one. Captain Stafford is well known on the lakes, a good sailor, and is sure to make the Ste. Marie a success.

Captain Ford Hursley will spare no means in fitting out the Flora Holden.

Captain Cal Bensler and J. R. Cook have started to make some extensive alterations in the Bertha Endress. They are now converting her from a tug into a full fledged ferry and excursion boat. The frames are all up for her cabin. They also intend to do general trafficking on the river.

Captain John Baptiste Mondor, late of the Ste. Marie, takes charge of the steamer Minnie M., of the Delta Transport line.

There will be a great many rafts pass through the Sault river the coming season.

The ice in the river now being cut for storage is only ten inches thick, while usually it is three feet thick at this time of the year.

Good judges predict an early opening of navigation compared to what it has been heretofore for several seasons past.

Mr. George Masters, engineer of the Ste. Marie, put in an appearance here last week. He has been in Cleveland spending the winter.

Captain John Spalding, superintendent of the canal, has been succeeded by Martin Lynch, to take effect March 1st. The captain will be missed on the canal, as he is well known on the lakes among the sailors. He has been there a number of years.

Boat owners expect a very busy season on the Sault river this year, and will make preparations to that effect.

The Marine Engineers' Association here is progressing finely, has a good many members and expects many more.

Captains of steambarges wanting good pilots for mates would do well to send here, as we have several who have run the Sault river regardless of buoys. Rafting in the Sault river causes many of the stakes to be moved out of position and that makes it bad for large craft with long tows. A pilot can be hired at reasonable figures, thereby the barges would save a good deal of lightering. The names of the pilots here are Captain Jos. Taylor, Captain Fred Trempe, Henry Johnson, Leo Bernard, Jos. Rouleau, Captain Dave Tallion, Theo. Trempe, Sam H. Ashman. They are all good, trustworthy men.

J. G.

SARNIA.

The Beatty Line Co., are negotiating for the purchase of the steamer Michigan which has been running between Grand Haven and Milwaukee. She will take the place of the wrecked steamer Quebec.

The steamer Ontario, at Sarnia, is receiving a thorough overhauling.

PORT HURON.

The vessel agency of Wright & Eldridge has been dissolved.

The barge Yosemite is receiving new upper works at the yard of Dunford & Alverson.

The steambarge Oscoda has been taken out of the Dunford & Alverson dock nearly as good as the first day she was launched.

Captain Allen Fick, formerly of this city, has purchased a $5,000 interest in the steambarge Cumberland. He will command her this coming season.

Captain Wm. Forbes of this city, has let the contract to F. W. Wheeler, of Bay City, to build him a four masted schooner. Length of keel, 240 feet; beam 40 feet, depth of hold 17 feet.

BAY CITY.

Special to the Marine Record.

The steambarge Glasgow, one of the best crafts in the lumber trade, has been purchased from D. Whitney, Jr., of Detroit, by Mashlen & Sharp of this city, to tow their barge, the A. W. Wright. The Glasgow was built at Trenton in 1872 and repaired in 1882. She rates B1. Captain Wm. Sharp will be manager. They have the barge Taylor and two other barges which will constitute her tow and she will trade to Buffalo.

Following are the officers of the Bay City and Cleveland Transportation company: President, Clark Haywood; secretary, treasurer and manager, Thos. S. Christie; directors, W. R. Stafford, M. J. Jenness, J. A. Francomb, Clark Haywood and Thos. S. Christie. These gentlemen are the owners of the new barge building at Wheeler's to take the place of the Christie.

The big vessel firm of Mitchell, Boutell & Co. have dissolved, Mr. Boutell retiring. Report says Mitchell & Co. retain the coal yard and the steambarge Folsom, and tug Mackie, Emerald and Cora B. and the barge Rodee and two others. Mr. Boutell will take the tug Annie Mollet, side wheel steamers Westover and Sea Gull and the ratting outfit.

Smith's tug line boats will not be given any extensive repairs this winter. They are all in good shape.

The steamer Pickup, bought by the man who was clerk of the Wellington R. Burt last season, will run as an excursion boat from the Saginaw to Sand Point.

The past week the weather was very fine during the day but much rain fell during the night. By Saturday most of the snow was gone and fears of a break up were manifest, but Saturday night and Sunday it snowed and blowed hard; the weather was not very cold and work around the yards is progressing favorably.

Captain Vance is putting the spars in the Mears this week and Wm. Sharp is putting some repairs on the A. W. Wright.

G.

DULUTH.

The News says that Cooley & LaVaque closed early in the week the sale of their dock property, 40 feet front, to A. Booth of Chicago, consideration $1,500. This sale does not include the tug Amethyst or any of the fishing outfit belonging to Cooley, LaVaque & Co.

The Herald has the following notes: A company with $100,000 capital is being organized to build drydocks and a shipyard here. Of the capital invested, $50,000 will be furnished by ship owners in Cleveland, and builders in Maine, and the rest by parties here. The Cleveland parties have had numerous vessels in the Duluth trade for years and see the need of drydock facilities at some point on Lake Superior.

Captain Lloyds says he will put on an additional boat to the Hattie Lloyd for the Superior run this spring. He does not care to say yet just what craft it will be. He thinks he will also have purchased the Queen of the Lake by the opening of navigation and be in readiness to attend to excursion parties. Mariners expect an unusually early spring and the busiest lake season Duluth has ever known. Four years ago the harbor was open early in April and it is thought it will not remain closed longer than the middle of that month this year. The large fishing boat, the A. Booth, will start from Chicago for this port as soon as navigation is possible.

The extensive coal firm of Bell, Lewis & Yates, of Buffalo, have had a representative in Duluth lately, looking up the matter of building a coal dock, and opening business here on a large scale. This gentlemen, Mr. J. L. Lewis, has been making careful investigations, and examining property on both sides of the bay without as yet coming to any definite conclusion.

HOWARD H. BAKER & CO.,
Ship Chandlers and Sail Makers,
HAVE REMOVED TO THEIR NEW AND COMMODIOUS STORE,
18 & 20 Terrace,
Corner of Commercial and Pearl Streets,
BUFFALO, N. Y.

EAGLE BOILER WORKS,
M. RITER, Prop'r,
Cor. Indiana & Mary St.,
BUFFALO, N. Y.
MANUFACTURER OF
High and Low Pressure
Marine, Stationary, Portable, Locomotive and Upright Boilers; also, Salt Pans, Smoke Pipes and Heavy and Light Plate Iron Work of all Descriptions.
REPAIRS PROMPTLY ATTENDED TO.

Paper

HISTORY OF LAKE NAVIGATION.

BY J. W. HALL.

Written for the Marine Record.

CHAPTER LVII.

Lake business commenced at Detroit in 1859, March 10, the steamer Island Queen, Captain Orr, arriving at that port; at Port Colborne April 1, and at Buffalo April 7, the propeller Equinox the first to depart. The Straits of Mackinaw were clear April 4, the propeller Prairie State the first craft through, bound east. The first boat through the Sault canal was the steamer Lady Elgin, Captain Jack Wilson, May 3.

During the month of April, owing to a failure of the ice crop at various lower ports; notably Cleveland and Detroit, quite a number of steam and sail craft embarked in the trade to points on Lake Huron. The propeller Mineral Rock brought four hundred tons of ice from Frying Pan Island. This traffic was kept up until the middle of May.

There were owned at Detroit seventy-three side wheel steamers, aggregating 20,175 tons; thirty-two propellers, 6,000 tons; four barques, 1,337 tons; seven brigs, 1,877 tons; one hundred and thirty-one schooners, 19,671 tons; one hundred and thirty-six scows, 4,332 tons.

The largest steamer on the lakes was the Western World, 2,603 tons. There were nine others beside, over 1,000 tons each, twenty-one measuring over 400 tons, fifty-eight measuring over 200 tons, seventy measuring over 100 tons, sixty-three measuring over 30 tons, and sixty-one measuring under 20 tons.

There were at this period one-thousand and six hundred vessels navigating the whole northwestern lakes with an aggregate of half a million tons.

The following table shows the rates of seamen's wages at different periods during the season, vessels in the lake shore trade usually paying the highest wages given:

April 1 to August 15, $17 to $14 per month.
August 15 to October 1, $16 per month.
October 1 to November 1, $18 to $20 per month.

November 1 to close of the season wages were from $1.00 to $1.50 per day.

The fall of 1859 was attended with more heavy gales than had been known for a number of years.

Passages of vessels by Detroit, bound up, steamers 194, propellers 492, barges 273, brigs 295, schooners 1,811; total, bound up, 3,065. Down bound passages, steamers 195, propellers 463, barques, 284, brigs 314, schooners 1,825; total 3,121; grand total, both ways, 6,186. Greatest number passing up in one day 85, down 73.

During the season there were shipped to Europe by lake vessels 602,857 West India staves, 142,562 standard pipe staves, and 474,693 feet of oak, walnut and pine lumber. This is exclusive of the cargoes shipped from Cleveland, Milan and Buffalo, those statements never having been exhibited.

The business through the Sault canal in 1859 far exceeded any former year. The number of vessels passing through during each month were as follows: May 123 vessels, aggregating 47,600 tons; June 184 vessels, 67,955 tons; July 220 vessels, 74,933 tons; August 193 vessels 64,753 tons; September 121 vessels, 40,560 tons.

The following steamers plied regularly in the trade:

Steamer North Star, 1,108 tons, Captain B. G. Sweet.
Steamer Illinois, 926 tons, Captain John Frazer.
Steamer Lady Elgin, 1,037 tons, Captain J. Wilson.
Propeller Montgomery, 879 tons, Captain J. Nicholson.
Propeller Northern Light, 716 tons, Captain J. Spalding.
Propeller Iron City, 934 tons, Captain J. E. Turner.
Propeller Mineral Rock, 660 tons, Captain R. S. Ryder.
Propeller Manhattan, 329 tons, Captain C. Ripley.

The latter steamer was unfortunately wrecked near the close of the season at Grand Marias, Lake Superior.

The propeller General Taylor, Captain J. G. Parker, made one trip to Marquette. The steamer Forester, Captain J. P. Ward, made one voyage late in the fall with supplies, and the propeller, Governor Cushman, one or more trips. Quite a number of sail vessels were employed in the iron ore trade.

The following pioneer lake men, well and prominently known, died in 1859:

Captain C. H. Ludlow, suddenly, of heart disease, at Dunkirk, aged 59.
Captain John Dibbrow, at Huron, O., aged 60.
Captain G. G. Hollywood, of dropsy, at St. Louis, Mo., aged 41.
Captain Armistead Lum, at Black River, O., aged 44.
Captain Palme Mann, at St. Joseph, Lake Michigan, aged 69.
Captain I. T. Pheatt, at Toledo, O., aged 46 years.

Captain Wm. Watts died on Lake Superior, and was buried at Cleveland, aged 45.

The various lake losses figure up as follows: Steamers wrecked or sunk, four, valuation, $2,500; steamers sunk four, $16,500; one by fire, $12,000; twenty damaged, $20,685; one jettisoned cargo, $3,500; three by collision, $800 Propellers, seven wrecked or sunk, $225,650; sixteen stranded, $13,700; one by fire, $100; twenty-four damaged, $12,540; three jettisoned cargo, $2,150; seven by collision, $47,250. Barques stranded, five, $6,740; fifteen damaged, $24,100; three by collision, $2,575. Brigs wrecked or sunk, six, $35,100; ten stranded, $15,900; nine damaged, $5,630; one jettisoned cargo, $700; six by collision, $25,700. Schooners wrecked or sunk eighteen, $61,688; seventy-eight stranded, $279,381; five three, $3,550; damaged one hundred and twenty-one, $101,732; jettisoned cargo fifteen, $11,061; collision thirty-four, $63,095. Scows wrecked or sunk five, $8,250; stranded eleven, $18,450; damaged seven, $1,650; collision two $350; total, steam and sail craft, $1,020,100; number of disasters, 449.

The following craft passed out in 1859:

Steamer Asa R. Swift, exploded on St. Clair river, $3,000.

Steamer Moor, lost at Ontonagon, Lake Superior, $3,000.

Propeller Lady of the Lake, exploded and sunk in Lake Erie, with two lives, $40,000.

Propeller Manhattan, wrecked at Grand Marias, Lake Superior, $20,000.

Propeller Ohio, exploded and sunk off Erie and two lives lost, $90,000.

Propeller Milwaukee, sunk by schooner J. H. Tiffany in the Straits, $50,000.

Propeller Oriental, wrecked on Skillagalee, $30,000.

Propeller Troy, foundered off Point au Barque and twenty-three lives lost, $30,000.

Brig Portland, wrecked at Grand Haven, $1,000.

Brig Manchester, wrecked east of Cleveland, $5,000.

Brig Columbia, lost in Green Bay, $4,000.

Brig Buffalo, wrecked at Grand Haven, $8,000.

Brig Greyhound, lost near Sheboygan and one life lost, $30,000.

Brig Cumberland, wrecked at Milwaukee, $6,000.

Brig N. M. Standart, sunk by schooner Autocrat, Lake Michigan, $23,000.

Brig Missouri, wrecked at Kalamazoo, $4,000.

Schooner Big Z, lost near Sheboygan, Lake Michigan, $3,000.

Schooner Virginia Purdy, wrecked at Point au Peller, $5,000.

Schooner Euphemia foundered in Lake Michigan and six lives lost, $3,000.

Schooner Bay City, wrecked on East Sister, $14,000.

Schooner Cleopatra, sunk by bark Adriatic, Lake Erie, $10,000.

Schooner General Houston, wrecked at Fairport, $3,000.

Schooner Forest, sunk by brig Acadia in Lake Erie and loss of one life, $4,000.

Schooner Dawn, sunk by propeller New York in Lake Erie, $12 000.

Schooner J. H. Tiffany, sunk by propeller Milwaukee in the Straits and five lives lost, $40,000.

Schooner Twilight, lost on Lake Ontario, $2,000.

Schooner California, lost at Port Clinton, Lake Erie, $1,000.

Schooner White Pigeon, lost on east shore of Lake Michigan, $2,000.

Schooner Sodus, wrecked near same place, $2,000.

Schooner Coaster, wrecked on Lake Superior, $5,000.

Schooner Island Queen, wrecked in the Straits, $20,000.

Schooner C. L. Burton, wrecked at Ashtabula, $5,000.

Schooner A. Scott, wrecked at Vermilion, $5,000.

Scow Antelope, lost at Point au Pelles, $2,000.

Scow William, wrecked at Fairport, $5,000.

Scow Stanley lost in Georgian Bay, $3,000.

Schooner Constitution, lost at Port Bruce, Lake Erie, $1,000.

Schooner Adda, lost at Lakeport, Lake Huron, $3,000.

Scow Sea Witch, wrecked at Fort Erie, C. W., $2,000.

Scow Geneva, lost at North Manitou, $1,500.

Schooner E. Creamer, wrecked at Chicago, $3,000.

Loss by steam vessel, $331,535; loss by sail vessels, $668,565; lives lost, 105; disasters, 440.

The backward state of lake business in 1859 limited the construction of vessels, and consequently but few were commissioned.

The records present the following vessels, built that year:

Steamship Milwaukee, 1,113 tons, built by Bidwell & Banta, Buffalo.

Steamship Detroit, 1,113 tons, built by Bidwell & Banta, Buffalo.

Steamer Comet, 855 tons, built by R. C. Cromwell, Newport.

Steamer Bonny Boat, 125 tons, built by J. W. Keating, Sandusky.

Steamer Seabird, 570 tons, built by R. C. Cromwell, Newport.

Propeller Akron, 367 tons, built by Quayle & Martin, Cleveland.

Propeller James E. Eagle, 194 tons, built by C. Hinman, Algonac.

Schooner Sunbury, 224 tons, built by F. N. Jones, Buffalo.

Bark W. S. Pierson, 386 tons, built by Fordham, Sandusky.

Propeller Michigan, 456 tons, built by R. Stead, Point Edward, for the Grand Trunk railway for ferry purposes.

Schooner S. A. Douglass, 380 tons, built by Ellenwood, Sackets Harbor.

Schooner Defiance, 141 tons, built by R. Munson, Port Hope, Ontario.

Schooner Dream, 80 tons, built by Lafrinier, Cleveland.

Schooner George Foote, 316 tons, built by A. McKay, Detroit.

Schooner Mediterranean, 297 tons, built by D. Rogers, Sodus, N. Y.

Tug A. S. Bemis, 49 tons, built by Crosthwaite, Buffalo.

Tug Seymour Belle, 51 tons, built by Norton & Leland, Cleveland.

Total tonnage, 5,225 tons; total valuation, $318,700.

A DOCKAGE SYSTEM FOR CHICAGO.

The time is fast approaching, if it has not already arrived, when a definite plan for furnishing the city of Chicago with docks and slips must be matured. This is a subject of vast importance to a great commercial city like ours, having so extensive a water front. But it presents no difficulties which can not be overcome and the whole system divested of all complications and intricacies, placed, as it should be, on such a tangible and solid basis as to not only afford entire relief for the enormous tonnage touching at this port, but also prove a source of large revenue to the city. We have been drifting along for many years without any definite plans for the accommodation of our vast shipping interest, and are only aroused now by the urgent necessities of the case.

Last year there were 10 744 arrivals at this port, representing a tonnage of 3,653,930 tons, and 10,798 clearances, representing a tonnage of 3,652,286 tons; the tonnage in both instances being somewhat smaller than for the previous year, which is no doubt accounted for to a great extent by the inconvenience experienced, the loss of time entailed, and the great expense attending the entrance and exit from our river. Indeed, it is a significant fact that the number of vessels arriving at, and departing from, this port during the past four years has been steadily declining. This is accounted for in part by the fact that the class of vessels employed in our lake navigation has materially changed within that time by the substitution of steam vessels of larger tonnage for the small sailing craft formerly employed; but this should not affect the aggregate of the tonnage carried, which has also shown a steady decline during the period named. The statistics show as follows:

Year.	ARRIVALS.		CLEARANCES.	
	Vessels.	Tonnage.	Vessels.	Tonnage.
1882....	13,351	4,859,950	13 626	4.904,699
1883....	11 907	3,812 464	12.015	3 980,879
1884....	11 354	3 756 973	11 861	3 751,723
1885....	10 744	3,653,930	10 798	3,652,286

These figures are somewhat startling, and show the effects of the crowded condition of the river, with all the vexatious and inconveniences arising from the bridges, and tell too plainly that something must be done to relieve our overcrowded river.

With such an obstacle in the way of the transition of the produce of the vast area lying west of us it is folly to charge all our freight troubles upon the railways on account of discrimination against Chicago. The difficulty is a local one, and will continue to increase unless a remedy is applied, and the greatest danger is that the business once diverted will continue to flow in other channels, and in that way give Chicago the permanent go by; and for this reason no time should be lost in dealing with a question which at this critical juncture would, in its relations to the commercial prosperity of the city, appear to be of paramount importance. There is no fear that Chicago will ever become a way station; but there certainly are good grounds of fear that she will lose much of the prestige gained in former days if her grain trade is to be ground out between the millstones of extortionate elevator charges and such totally inadequate facilities as are now offered her shipping.

The docks and slips to be constructed must, of course, be located north and south of Chicago River. The owners of property on Michigan avenue who, for the most part, comprise business men who have a direct interest in the growth and welfare of our city, have come to regard the construction of wharves in front of their property as an absolute necessity, and have therefore become reconciled to the whole project, accepting it as a foregone conclusion. The question, of course, depends largely upon the result of the proceedings now pending between the State of Illinois and the Illinois Central Railroad Company; the city of Chicago, although made a defendant in the suit, has unwisely abandoned all claim to the lake front and practically admitted all the allegations contained in the information filed by the attorney general. If these proceedings shall result in establishing the claims of the Illinois Central Railroad Company to the lake front under the act of 1869 they will doubtless proceed at once to construct docks from Randolph street to the pier now nearly completed at Thirteenth street. Such a result, although it would enrich a private corporation many millions of dollars and make the commerce of the city pay tribute to it forever, would be better than to permit the present state of things continue indefinitely. It would perhaps afford great relief to the shipping entering our port, and might be so restricted and regulated as to answer the same purpose as if the docks were built and owned by the city. The city would in any event have the same right as it now has under its charter, adopted April 23, 1875, to regulate and control the use of all public and private landing places, and to fix the rates of wharfage and dockage.

But should the proceedings referred to be decided adversely to the railroad company the title to the lake front would then revert to the state. If, then, assuming that the state would not care to undertake the work herself, an act could probably be obtained from the Legislature granting to the city of Chicago whatever right the state may hold in the submerged lands bordering on the lake within the limits of the city; the city could then either proceed to erect such necessary docks and slips as might be required, or it could as is done in some of the older Eastern cities, lease the privilege, under proper restrictions to individuals or corporations, and in this way the entire purpose could be accomplished without adding to the debt of the city, while the ownership of the submerged lands would, under the grant of the state, rest in the city.

Up to 1871 the city of New York occupied about the same position in relation to its docks as the city of Chicago does to-day—that is, it had no established system looking to the control of its vast water front. A feeble attempt had been made the year before to control it by organizing, under act of legislature, a board for that purpose, but their powers were so limited that it did not meet the wants of the case, and on the 18th of April, 1871, the legislature passed an act under which the duties and authority of the "Department of Docks" was considerably enlarged. This board has, subject to the approval of the commissioners of the sinking fund, exclusive charge and control of all the wharf property belonging to the city, and all the land under water lying adjacent thereto, acquired under the act of the Legislature. They can lease to the highest bidder docks or water rights, or purchase or construct additional docks. The act also gave them control of all wharves, bulkheads, etc., owned by private individuals by the regulation of charges for their use. The board has also authority to acquire either by purchase or condemnation, for the benefit of the city, any wharf property belonging to private individuals; all proceedings being conducted by the corporation counsel. The commissioners of the land office, in whom formerly rested the title to the lands under water, have conveyed from time to time all the title of the state to the city of New York.

The comptroller, when requested by the commissioners of the sinking fund, prepares and issues bonds called "dock bonds of the city of New York," for the purpose of raising money necessary to carry out the provisions of the act. Not more than $3,000,000 of bonds can be issued in any one year, nor can the bonds be sold for less than par. The proceeds of bonds are deposited in the city treasury and are drawn out and paid by the comptroller under the requisition of the dock board, countersigned by the commissioners of the sinking fund, so that the interest of the city is fully protected. It has not been found necessary, however, to issue so large an amount in any past year. The entire expenditures for new wharves, bulkheads, and improvements, including also repairs to old wharves, dredging, and many incidental items, during the organization of the board for the past fifteen years (i. e., from 1871 to 1885, both years inclusive,) have been $10,830,196.56, while the accrued revenue of the department for the same time has been $11,553,423.13. The amount of money deposited last year alone to the credit of the commissioners for the sinking fund for rents of docks and slips was $1,187,280.63.

Space will not permit entering into further detail at this time, but the subject is one upon which such stupendous results depend that, in view of a possible early settlement of the legal cases now pending, it deserves the thoughtful attention of our people. Chicago needs the docks so badly that to hasten the result it might be wise, should the case in the lower court be decided in favor of the Illinois Central, to make a compromise with the great corporation that has been for years winding its slimous form about this valuable property. The question must be settled, and the sooner it is done the better.—*Inter-Ocean.*

The Algoma leaves St. Ignace at 8 p. m; or immediately on the arrival of the Marquette express and runs to Mackinaw City, there connecting with trains on the Michigan Central and Grand Rapids & Indiana railroads. She lies there until morning, when she crosses with mail, freight and passengers, connecting here with the train for Marquette, Hancock, Houghton, etc. She crosses usually in an hour, sometimes it takes her a quarter of an hour longer. The run is about eight miles, and the ice varies in thickness from eight to fourteen inches. The great depth of snow is quite a hindrance to her, but ice and snow together cannot make the gallant steamer fail of a crossing this winter. The reason is that the sharp, clear cold weather froze the surface of the straits from shore to shore, and there are no great windrows of field ice piled up or crushed down by wind and tide, forming ice walls twenty or thirty feet deep. The Algomah can go through any ice we are likely to have this winter like a steer through a patch of green corn.—*St. Ignace Republican.*

The Port Arthur Sentinel says. Captain Foote, the popular commander of the steamer Athabasca, for last year, has been reappointed to that position for the coming season. His many friends here will be pleased to hear of this appointment and welcome him back again when the ship comes in.

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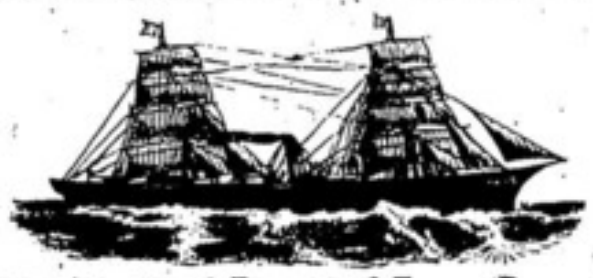

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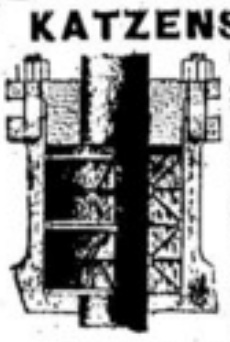

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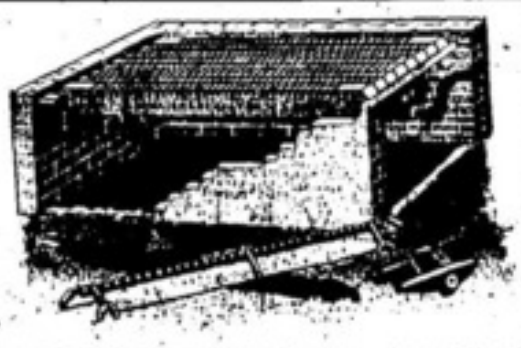

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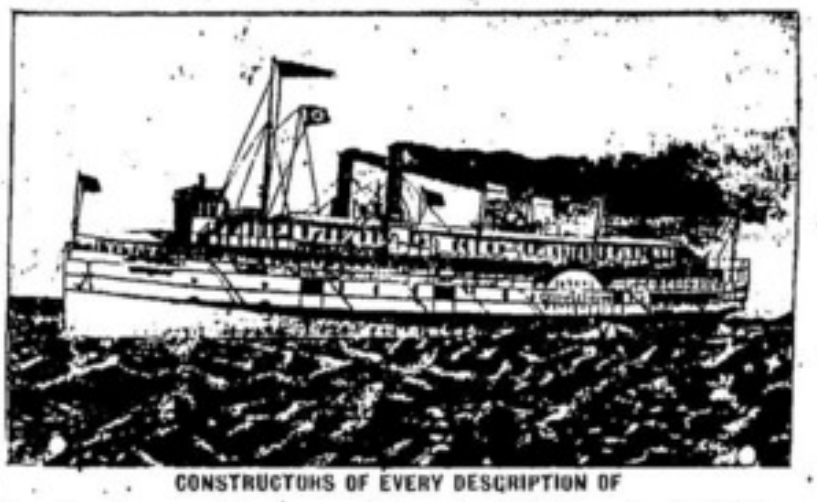

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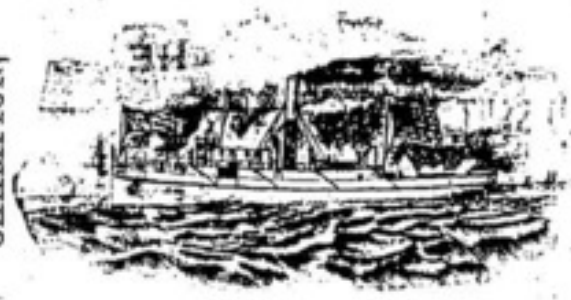

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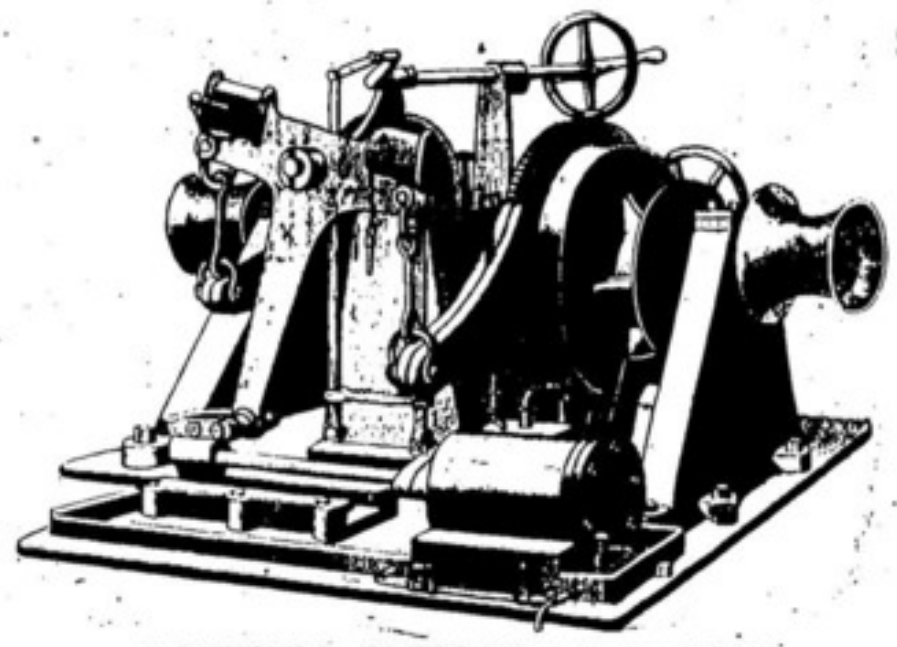

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